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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: NOVEL IMMUNOGENIC LIPOPEPTIDES COMPRISING T-HELPER AND CYTOTOXIC T LYMPHOCYTE (CTL) EPITOPES

(57) Abstract: The present invention provides synthetic immunogenic lipopeptide molecules comprising co-linear T-helper and CTL epitopes, and methods for their production and use in the generation of primary and secondary immune responses, and for the vaccination of animal subjects against particular CTL epitopes. More particularly, the present invention provides highly soluble lipopeptides wherein the lipid moiety is attached to the terminal side-chain group of an internal lysine or lysine analog, preferably to the terminal side-chain group of an internal diamino acid residue. Preferably the internal lysine or lysine analog is positioned between the T-helper epitope and the CTL epitope.

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# INTERNATIONAL SEARCH REPORT

International application No.

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## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. <sup>7</sup>: C07K 19/00; A61K 39/145, 39/29, 39/02, 39/00; A61P 31/14, 31/16, 35/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE ELECTRONIC DATA BASES BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
STN Files Medline, CA, Biosis, WPIDS, key words: lipoprotein, lipopeptide, lipopolypeptide, ?palmitoyl?,  
?myristoyl?, ?stearoyl?, ?decanoyl?, ?lauroyl?, ?octanoyl?, lipoamin?, pam3cys, pam2cys, oct2cys, ctl, cytotoxic t  
lymphocyte, t helper, th cell, tetanus toxoid, pfg27, lactate dehydrogenase, gp120, haemagglutinin, hemagglutinin

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	E. BORGES <i>et al.</i> , "Efficacy of synthetic vaccines in the induction of cytotoxic T lymphocytes. Comparison of the costimulating support provided by helper T cells and lipoamino acid," Journal of Immunological Methods, 173 (1994) pp. 253-263.	1-100
Y	See peptides of type c.	
	See whole document.	
Y	J.-P. SAUZET <i>et al.</i> , "Long-lasting anti-viral cytotoxic T lymphocytes induced in vivo with chimeric-multirestricted lipopeptides," Vaccine, 13(14), pp. 1339-1345 (1995).	1-100
	See whole document.	

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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C (Continuation).

## DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	A. VITIELLO <i>et al.</i> , "Development of a lipopeptide-based therapeutic vaccine to treat chronic HBV infection," J. Clin. Invest., (1995), 95, pp. 341-349. See whole document.	1-100
Y	F.-A. LE GAL <i>et al.</i> , "Lipopeptide-based melanoma cancer vaccine induced a strong MART-27-35-cytotoxic T lymphocyte response in a preclinical study," Int. J. Cancer, 98, pp. 221-227 (2002). See whole document.	1-100
X	WO 93/22343 A1 (THE ROCKFELLER UNIVERSITY), 11 November 1993. See whole document.	1-100

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/01019

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member	
WO	93/22343	US	5580563
			END OF ANNEX